BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	October 10, 2022
Hours:	19:00 Hours

Date	Time	Load(MW)
30-Aug-22	19:23 hrs	536.69

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	186.15	400kV THP - Siliguri Line - I	265.89	
		Unit- II	184.73	400kV THP - Siliguri Line - II	264.76	
		Unit- III	184.71	400kV THP - Siliguri Line- IV	258.88	
		Unit- IV	183.80	400kV THP - Malbase Line - III	314.36	
		Unit- V	185.83	400kV Malbase - Siliguri Line	242.65	
		Unit- VI	186.51	-	-	
		Total	**1,111.73**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.71%**	
2	720MW MHP	Unit-I	196.98	400kV MHP - Jigmeling Line - I	316.89	400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	197.75	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.35	400kV MHP - Jigmeling Line - III	318.69	
		Unit-IV	195.57	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	85.09	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	15.29	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	153.29	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	229.24	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	230.37	
		-	-	80MVA, 220/132kV ICT - I (HV)	18.68	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.02	
		-	-	220kV Tsirang - Jigmeling Line	-28.59	
		-	-	132kV Gelephu - Salakati Line	26.82	
		Total	**725.65**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.69%**	
3	336MW CHP	Unit- I	91.27	220kV CHP - Birpara Line- I	80.00	
		Unit- II	91.18	220kV CHP - Birpara Line- II	79.69	
		Unit- III	91.63	220kV CHP - Malbase Line- III	110.18	
		Unit- IV	75.26	220kV CHP - Semtokha Line- IV	66.70	
		-	-	220kV Malbase - Birpara Line	45.56	
		-	-	66kV CHP - Chumdo Line	1.15	
		-	-	66kV CHP - Gedu Line	8.48	
		-	-	3x3MVA, 66/11kV TFR	1.56	
		Total	**349.34**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.45%**	
4	24MW BHP (U/S)	Unit- I	12.00	220kV BHP - Semtokha Line	61.60	
		Unit- II	11.70	66kV BHP - Lobeysa Line	29.60	
		Total	**23.70**	220kV BHP - Tsirang Line	-26.56	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.56	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	6.54	
		Total	**41.70**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.31%**	
6	126MW DHP	Unit-I	42.40	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	42.04	220kV DHP - Dagapela Line	83.94	
		-		220kV Jigmeling - Dagapela Line	-52.72	
		-	-	5MVA, 220/33kV TFR	0.45	
		Total	**84.44**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.06%**	
7	60MW KHP	Unit- I	16.59	132kV KHP - Nangkhor Line	36.43	
		Unit-II	16.63	132kV KHP - Kilikhar Line	28.69	
		Unit- III	16.66	5MVA, 132/11kV TFR	0.35	
		Unit- IV	16.67	132kV Motanga - Rangia Line	44.74	
		Total	**66.55**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.62%**	

Note: Generation-Load Summary (MW) for October 10, 2022 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	1,610.91	349.35	339.68	1,237.43	9.67
2	Eastern Grid	792.20	131.87	125.81	684.46	6.06
Total		**2,403.11**	**481.22**	**465.49**	**1,921.89**	**15.73**

Note: Generation-Load Summary for October 10, 2021 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	1,154.35	314.09	312.51	787.96	1.58
2	Eastern Grid	467.11	79.67	76.17	439.74	3.50
Total		**1,621.46**	**393.76**	**388.68**	**1,227.70**	**5.08**

NOTE-MAT data collected from site.

1. The Instantaneous load balance,calculated as (Total generation - (Total export-Import) - Total domestic load), do not tend towards zero. This could be due to the following reasons:
   i) Not all the meters are digital and nor are all the meter at all locations can be read at same time (say 9:00hrs) due to many meter to be read manually.
   ii) The clocks of all the locations are not synchronized.
2. This report is generated to give an idea of the generation & load flow for the system at a particular instant.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load		
Date	Time	Load(MW)
30-Aug-22	19:23 hrs	536.69

Date:	October 11, 2022
Hours:	09:00 Hours

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	187.16	400kV THP - Siliguri Line - I	273.22	
		Unit- II	183.75	400kV THP - Siliguri Line - II	270.81	
		Unit- III	184.67	400kV THP - Siliguri Line- IV	264.13	
		Unit- IV	183.94	400kV THP - Malbase Line - III	295.17	
		Unit- V	187.90	400kV Malbase - Siliguri Line	253.69	
		Unit- VI	186.54	-	-	
		Total	**1,113.96**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.95%**	
2	720MW MHP	Unit-I	195.77	400kV MHP - Jigmeling Line - I	330.40	400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	197.72	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.24	400kV MHP - Jigmeling Line - III	332.60	
		Unit-IV	194.74	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	53.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	-23.45	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	158.72	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	237.36	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	238.38	
		-	-	80MVA, 220/132kV ICT - I (HV)	6.85	
		-	-	80MVA, 220/132kV ICT - II (HV)	6.96	
		-	-	220kV Tsirang - Jigmeling Line	-20.20	
		-	-	132kV Gelephu - Salakati Line	20.50	
		Total	**723.47**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.03%**	
3	336MW CHP	Unit- I	91.27	220kV CHP - Birpara Line- I	81.22	
		Unit- II	91.18	220kV CHP - Birpara Line- II	81.07	
		Unit- III	91.63	220kV CHP - Malbase Line- III	123.81	
		Unit- IV	75.26	220kV CHP - Semtokha Line- IV	54.08	
		-	-	220kV Malbase - Birpara Line	37.41	
		-	-	66kV CHP - Chumdo Line	0.43	
		-	-	66kV CHP - Gedu Line	7.64	
		-	-	3x3MVA, 66/11kV TFR	1.02	
		Total	**349.34**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.02%**	
4	24MW BHP (U/S)	Unit- I	11.90	220kV BHP - Semtokha Line	56.70	
		Unit- II	11.60	66kV BHP - Lobeysa Line	26.36	
		Total	**23.50**	220kV BHP - Tsirang Line	-18.93	
5	40MW BHP (L/S)	Unit- I	20.40	5MVA, 66/11kV TFR	0.39	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	3.83	
		Total	**41.50**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.74%**	
6	126MW DHP	Unit-I	45.40	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	45.01	220kV DHP - Dagapela Line	89.97	
		-		220kV Jigmeling - Dagapela Line	-58.15	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	**90.41**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.27%**	
7	60MW KHP	Unit- I	16.54	132kV KHP - Nangkhor Line	18.33	
		Unit-II	16.56	132kV KHP - Kilikhar Line	46.71	
		Unit- III	16.63	5MVA, 132/11kV TFR	0.50	
		Unit- IV	16.56	132kV Motanga - Rangia Line	11.80	
		Total	**66.29**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.13%**	

Note: Generation-Load Summary (MW) for October 11, 2022 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	1,618.71	319.21	307.79	1,261.55	11.42
2	Eastern Grid	789.76	160.95	152.73	666.76	8.22
Total		**2,408.47**	**480.16**	**460.52**	**1,928.31**	**19.64**

Note: Generation-Load Summary for October 11, 2021 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	1,073.40	296.17	284.38	721.77	11.79
2	Eastern Grid	427.68	64.14	61.82	419.00	2.32
Total		**1,501.08**	**360.31**	**346.20**	**1,140.77**	**14.11**

1. The Instantaneous load balance,calculated as (Total generation - (Total export-Import) - Total domestic load), do not tend towards zero. This could be due to the following reasons:
   i) Not all the meters are digital and nor are all the meter at all locations can be read at same time (say 9:00hrs) due to many meter to be read manually.
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